

ISD-1100/1200-T Series Hardware Installation Guide

Data Line Surge Protector

Second Edition, April 2014



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P/N: 1802011003010

Overview

The ISD-1100-T/1200-T series provides surge protection for serial data lines to prevent damage to devices such as modems, fax machines, I/O ports, terminals, instrumentation, hubs, and other devices that use serial data connections. The ISD-1100-T/1200-T can add serial data line protection to a variety of serial connections: RS-232, RS-422, and RS-485.

Package Checklist

Moxa's serial data line surge protector is shipped with the following items:

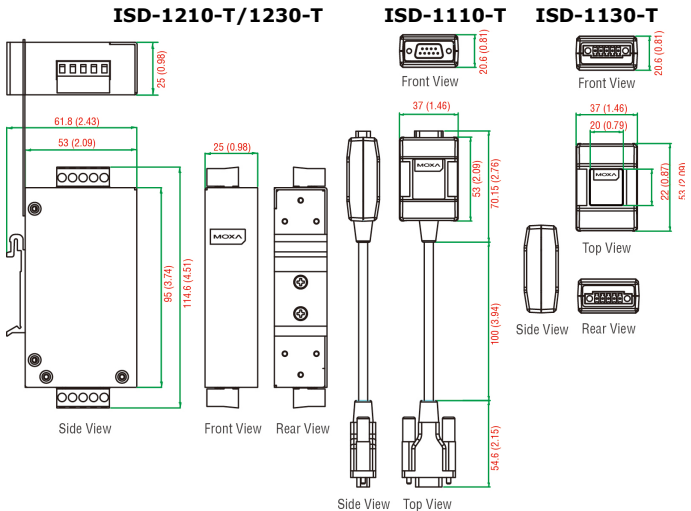
- 1 surge protector
- Hardware installation guide (printed)
- Warranty card

Note: If any of these items is missing or damaged, please contact your customer service representative for assistance.

Features

- Plug and play
- Surge protection for serial data lines
 - ISD-1110-T/1130-T: EN 61000-4-5 Level 4
 - ISD-1210-T/1230-T: IEC 61632-21 C2 (20 kV protection)
- Supports RS-232/422/485
- Compact size for easy installation
- Wide temperature models available for -40 to 85°C environments

Dimensions [mm (in)]

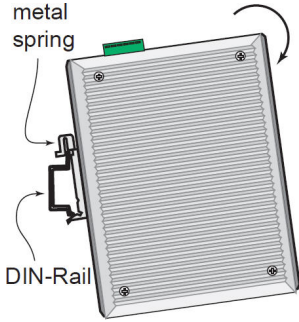


DIN Rail Mounting (ISD-1200-T Series only)

The aluminum DIN rail attachment plate should be fixed to the back panel of the ISD when you take it out of the box. If you need to reattach the DIN rail attachment plate to the ISD, make sure the stiff metal spring is situated towards the top, as shown in the figures below.

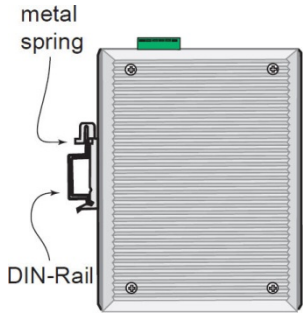
STEP 1:

Insert the top of the DIN rail into the slot just below the stiff metal spring.



STEP 2:

The DIN rail attachment unit will snap into place as shown below.



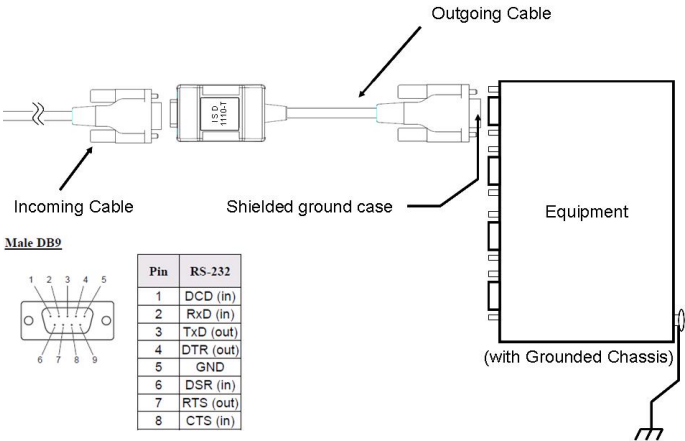
To remove the ISD from the DIN rail, simply reverse Steps 1 and 2 above.

Installation

Installation instructions are given below for each ISD model.

ISD-1110-T

1. Connect the incoming cable to the ISD surge protector.
2. Connect the outgoing cable to the external device.
3. Power on the external device or equipment.



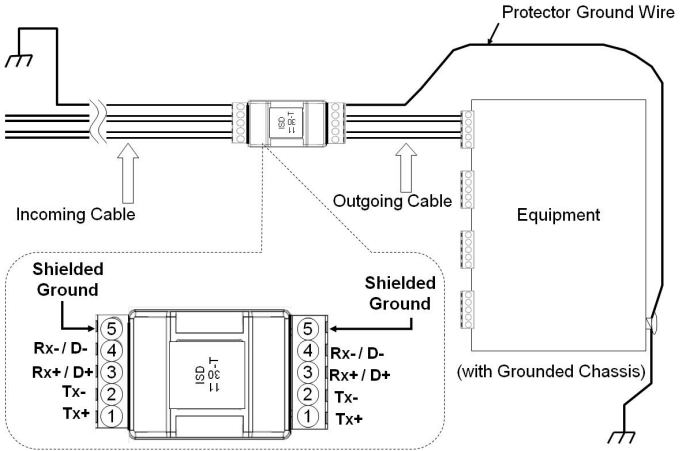
Male DB9



Pin	RS-232
1	DCD (in)
2	RxD (in)
3	TxD (out)
4	DTR (out)
5	GND
6	DSR (in)
7	RTS (out)
8	CTS (in)

ISD-1130-T

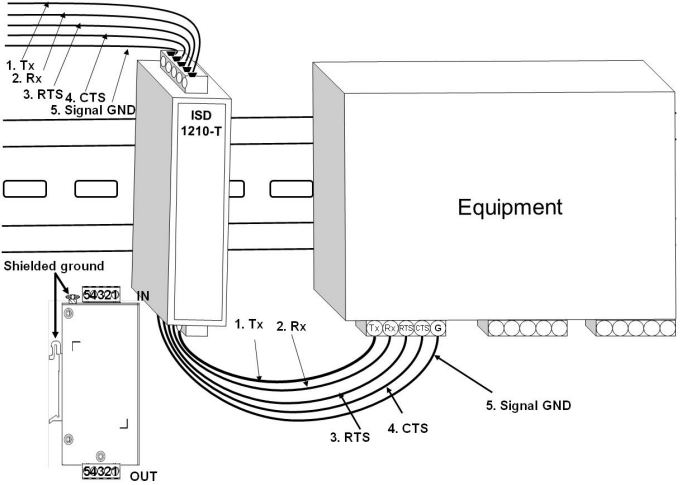
1. Connect the incoming cable to ISD surge protector.
2. Connect the outgoing cable to ISD surge protector.
3. Connect the outgoing cable to the external device.
4. Power on the external device or equipment.



PIN	RS-422/485-4W	RS-485-2W
1	TxD-(A)	-
2	TxD-(B)	-
3	RxD-(B)	Data+(B)
4	RxD-(A)	Data-(A)
5	Shielded GND	Shielded GND

ISD-1210-T

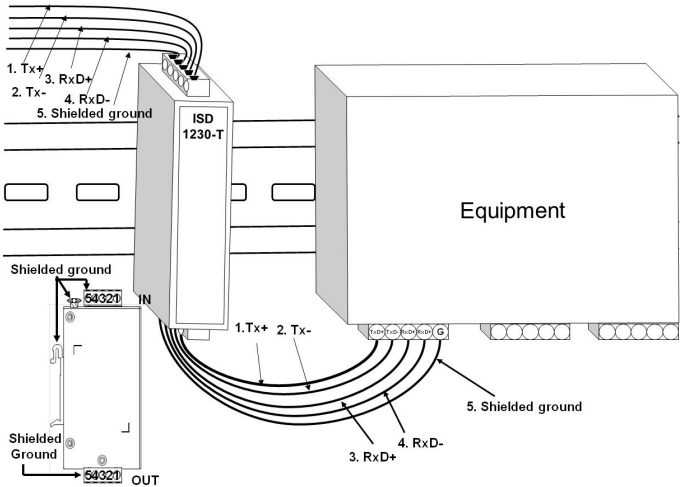
1. Connect the incoming cable to the ISD surge protector.
2. Connect the outgoing cable to ISD surge protector.
3. Connect the outgoing cable to the external device.
4. Attach the DIN rail attachment plate to the ISD surge protector.
5. Power on the external device or equipment.



PIN	RS-232
1	Tx
2	Rx
3	RTS
4	CTS
5	Signal GND
Screw	Shielded GND

ISD-1230-T

1. Connect the incoming cable to the ISD surge protector.
2. Connect the outgoing cable to ISD surge protector.
3. Connect the outgoing cable to external device.
4. Attach the DIN rail attachment plate to the ISD surge protector.
5. Power on the external device or equipment.



PIN	RS-422/485-4W	RS-485-2W
1	TxD-(A)	-
2	TxD-(B)	-
3	RxD-(B)	Data+(B)
4	RxD-(A)	Data-(A)
5	Shielded GND	Shielded GND

Suitable Applications

ISD-1110/1130-T

The ISD-1110-T and ISD-1130-T are suitable for general purpose applications, such as:

- Engines
- Low power motors (below 4 kW)
- Low voltage power systems

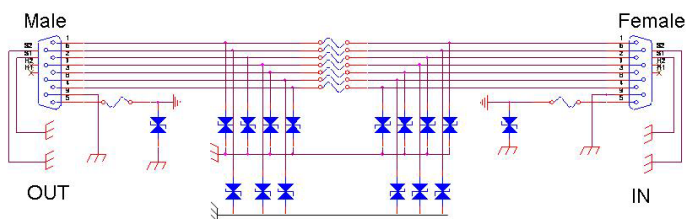
ISD-1210/1230-T

The ISD-1210-T and ISD-1230-T are suitable for harsh environment applications, such as:

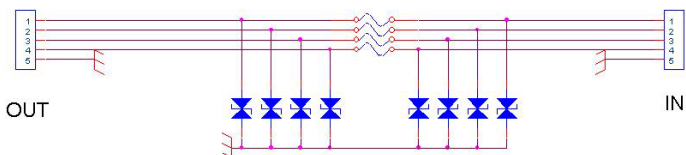
- Outdoor applications
- Building entryways
- High voltage power systems
- High power motors (over 4 kW)
- Critical applications
- Expensive equipment

Circuit Design

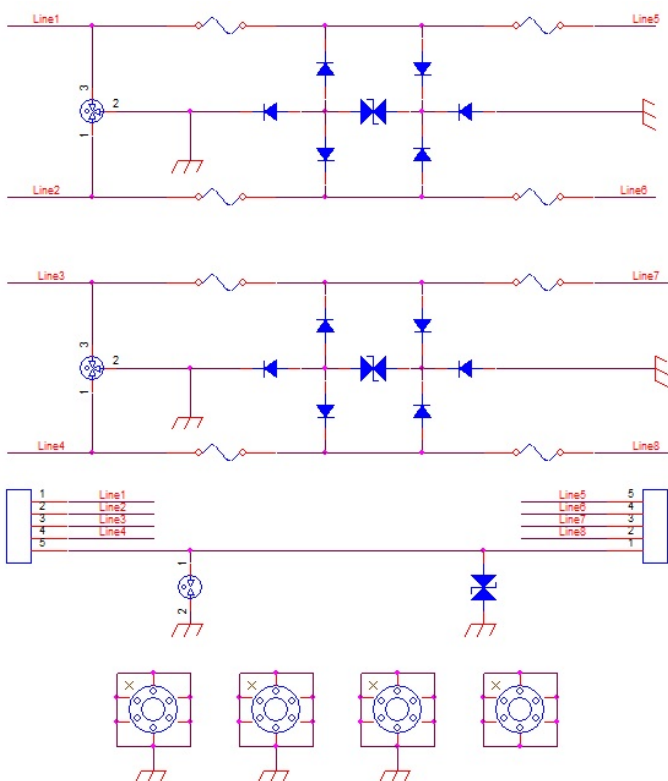
ISD-1110-T



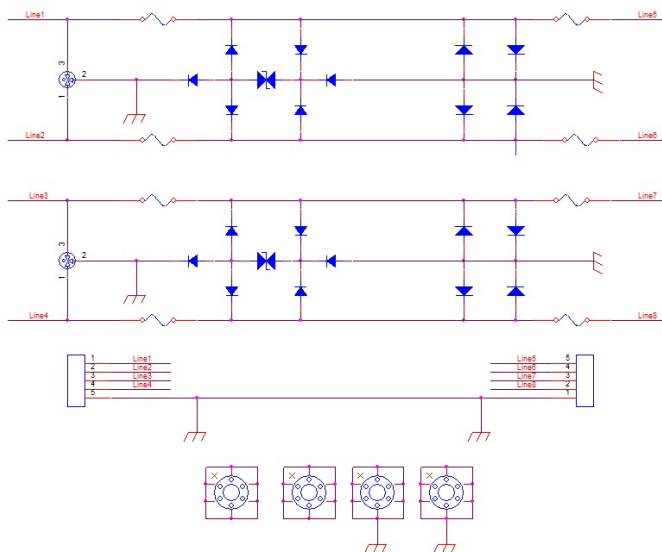
ISD-1130-T



ISD-1210-T



ISD-1230-T



Troubleshooting

New Installations:

1. Is your equipment plugged in and turned "on" at both ends.
2. Have you installed the right protector for the application?
3. Are all cables firmly attached?
4. Does the system work if the protector is bypassed? If the system operates when the protector is bypassed and or you have ruled out all of the above, please contact Moxa Technical Support.

Existing Installations:

1. Check to see if your equipment is turned on.
2. Inspect all connections.
3. Remove and bypass all protection devices on that line and verify proper operation.

If the system comes back on line without the protectors installed, chances are one or all of the protectors have been damaged by an excessive surge. Replace the surge protectors as soon as possible with new protectors. It is not advisable to operate your system with protection devices removed.

Specifications

Data Line Surge Protection
Maximum Power Protection: ISD-1110-T/1130-T: 400 watts ISD-1210-T/1230-T: 5000 watts
Number of Protected Lines: ISD-1110-T: 7 ISD-1130-T/1210-T/1230-T: 4
Surge Capacity: ISD-1110-T/1130-T: 4 kV, 8/20 μ s impulse per line ISD-1210-T/1230-T: 20 kV, 8/20 μ s impulse per line
Working Voltage: ISD-1110-T/1210-T: 15 V ISD-1130-T/1230-T: 5 V
Maximum Load Current: ISD-1110-T: 0.1 A (23°C), 0.05 A (85°C) ISD-1130-T: 0.12 A (23°C), 0.07 A (85°C) ISD-1210-T/1230-T: 0.4 A (20°C), 0.13 A (85°C)
Response time: < 1 ns
Protection Mode: Line to line, line to ground
Protection Rating: IP30
Bandwidth: 10 MHz loss < 1 dB
Connectors
ISD-1110-T: Data in: DB9 male Data out: DB9 female
ISD-1130-T: Data in: Terminal block Data out: Terminal block
ISD-1210-T/1230-T: Data in: Terminal block Data out: Terminal block
Physical Characteristics
Housing: ISD-1110-T/1130-T: Plastic ISD-1210-T/1230-T: Metal
Weight: <u>Product only</u> ISD-1110-T: 58 g ISD-1130-T: 30 g ISD-1210-T: 214 g ISD-1230-T: 212 g <u>Packaged</u> ISD-1110-T: 119 g ISD-1130-T: 96 g ISD-1210-T: 276 g ISD-1230-T: 274 g
Dimensions: ISD-1110-T: 53 x 37 x 20.6 mm (2.01 x 1.46 x 0.81 in) ISD-1130-T: 53 x 37 x 20.6 mm (2.01 x 1.46 x 0.81 in) ISD-1210-T: 95 x 53 x 25 mm (3.74 x 2.01 x 0.98 in) ISD-1230-T: 95 x 53 x 25 mm (3.74 x 2.01 x 0.98 in)

Environmental Limits
Operating Temperature: -40 to 85°C (-40 to 185°F)
Storage Temperature: -40 to 85°C (-40 to 185°F)
Ambient Relative Humidity: 95% max, non-condensing
Altitude: Up to 2000 m
Note: Please contact Moxa if you require products guaranteed to function properly at higher altitudes.
Standards and Certifications
EMS: ISD-1110-T/1130-T: EN 61000-4-5 Level 4 (4 kV) ISD-1210-T/1230-T: IEC 61643-21 C2 (20 kV 1.2/50, 10 kA 8/20)
Warranty and RMA Policy
Warranty Period: 5 years (limited to 1-time use)
Warranty Details: See http://www.moxa.com/warranty
Note: ISD products will only be repaired once within 5 years of purchase. After the first repair, the product's warranty will no longer be valid.
RMA Policy: Moxa does not provide RMA service for ISD products whose PCB board was destroyed by a surge.
Note: Be sure to purchase the ISD product with maximum surge protection suitable for your environment.

Technical Support Contact Information
www.moxa.com/support

Moxa Americas:

Toll-free: 1-888-669-2872

Tel: 1-714-528-6777

Fax: 1-714-528-6778

Moxa China (Shanghai office):

Toll-free: 800-820-5036

Tel: +86-21-5258-9955

Fax: +86-21-5258-5505

Moxa Europe:

Tel: +49-89-3 70 03 99-0

Fax: +49-89-3 70 03 99-99

Moxa Asia-Pacific:

Tel: +886-2-8919-1230

Fax: +886-2-8919-1231